# Mimulus Memo

California Native Plant Society
KERN CHAPTER


## *Seeing Red: A Feast for the Eyes*

*by Nancy Nies*

JANUARY 2017

CONTENTS


Seeing Red - 1
Accolades - 3
President's Message - 4
Mulch on My Mind - 7
Field Trips Listing - 8
Meeting Topics -11
Related Events - 12


EVENTS

JANUARY

19 – ANNUAL POTLUCK

FEBRUARY

16 – Chapter Meeting, 6pm
Program, 7pm

MARCH

4 – Field Trip: Kern Canyon

16 – Chapter Meeting, 6pm
Program, 7pm

25 – Field Trip: Rancho Santa Ana

27-29 – Wildflower Conference
Kernville, CA

27-30 – CNPS Bryophyte Chapter
Annual Outing, Three Rivers, CA

APRIL

1 – Field Trip: CALM

2 – Field Trip: Hungry Valley SRV

12 – Field Trip: Western Mojave
Desert

20 – Chapter Meeting, 6pm
Program, 7pm

29 – Field Trip: Salt Creek near
Three Rivers

THREE BRIGHT-RED LEAFLETS, BACK-LIT BY THE MORNING sun, stood out against a tan background, and I couldn't resist snapping a picture. It was early September of 2016, and the green leaves of *Toxicodendron diversilobium* (western poison-oak or Pacific poison-oak) were turning red, an indication that fall was coming to the Irish Hills Natural Reserve near San Luis Obispo. We were there to take part in a field trip led by **David Keil**, Professor Emeritus of Botany at Cal Poly, and organized in conjunction with the CNPS Conservation Symposium held in Morro Bay.

Photo by Nancy Nies

*Toxicodendron diversilobium* (western poison-oak)

On that morning's hike, we would climb the Bog Thistle trail to a ridge-top and return via the Mariposa trail, enjoying panoramic views of Laguna Lake and environs, as well as Dr. Keil's commentary on the plants adapted to the serpentine soils of the area, including rare and endangered ones such as *Cirsium fontinale* var. *obispoense* (Chorro Creek bog thistle), *Arctostaphylos obispoensis* (serpentine manzanita), and *Calochortus obispoensis* (San Luis mariposa lily). Though most plants were dry at this time of year, several quite common California natives would treat our eyes to pops of vibrant red, set off by an early-fall backdrop of tans and browns.

### *Toxicodendron diversilobium* —

As we waited for the group to assemble at the trailhead, we noticed that the parking area was surrounded by *T. diversilobium*, the leaves creating a beautiful red-and-green tapestry on all sides of us. We were to discover the plant to be plentiful along the trail, as well. (Can you complete the phrase, "*Leaves of three …*"? We did, and were to suffer no ill effects.)

A quick look at the Wikipedia entry on this widespread native shrub/vine will tell you that the original native name for Los Angeles translates as "*poison-oak place*"; that deer and squirrels eat the leaves, while birds feed on the berries; that native people used parts of the plant for medicinal purposes; and that it is actually cultivated for wildlife gardens and habitat restoration.

The Plant Encyclopedia offers a few more facts: that the plant's common name (poison-oak) should be hyphenated, so as to show that it is not a variety of oak; that its leaves often take the size and shape of plants growing around it, which explains its species name, *diversilobium* (having leaves of two or more forms); and that climate change due to rising CO2 levels is beneficial to the genus *Toxicodendron*, potentially making it both more potent and more abundant!

California botanist **John Thomas Howell** (1903-1994) is quoted in **Marin Flora** (2007), on the subject of *T. diversilobium*:

> *"In spring, the ivory flowers bloom on the sunny hill or in sheltered glade, in summer its fine green leaves contrast refreshingly with dried and tawny grassland, in autumn its colors flame more brilliantly than in any other native, but its one great fault, its poisonous juice, nullifies its every other virtue and renders this beautiful shrub the most disparaged of all within our region."*

## *Silene laciniata* ssp. *laciniata* —

In this season, many of the plants Dr. Keil pointed out were dry and brown — such as the rare, endemic *Cirsium fontinale* var. *obispoense* — but growing near the bog thistle colony was *Silene laciniata* ssp. *laciniata* (formerly *major*) (Indian pink, cardinal catchfly). UCLA botanists **B. A. Prigge** and **A. C. Gibson** call it "*a distinctive, scarlet flower of late spring and early summer.*" So, the few red blooms we saw in September were stragglers that we were fortunate to see.

Each of the tubular flower's five petals is "long-clawed" — *laciniata* means deeply cut—into four to six segments, resulting in a fringe-like appearance. **Michael Charters' Home Page**, which provides a dictionary of botanical names, states that the genus *Silene* is referred to as catchfly "*because of the stickiness of the herbage, which often traps insects,*" and relates the name *Silene* to the Greek word "sialon" (saliva), since the stems exude a gummy substance.

*Photo by Elaine with Grey Cats, Wikimedia Commons*

*Silene laciniata* (cardinal catchfly)

*S. laciniata* ssp. *laciniata* is related to the carnation and is loved by hummingbirds, says the **Theodore Paine Foundation**, which calls its red flowers "*stunning*" and recommends that native-plant gardeners combine them with those of bush monkey-flower and *dudleya*. **California Gardens** suggests it for planting in a hummingbird garden, in shade or strong indirect light. Though **Las Pilitas** does not advise its use as a drought-tolerant plant — except in its element of coastal strand and coastal sage scrub—the nursery does confirm the plant's ability to grow in different sites and soils, as well as the flower's appeal to both hummingbirds and butterflies.

## *Lonicera hispidula* —

As we continued up the trail, another red grabbed our attention several times—the translucent red berries of *Lonicera hispidula* (California honeysuckle), hanging in dense bunches from the vine. **Annie's Annuals** describes these ¼-inch berries as "jewel-like". With the sun shining on them, they looked delicious. Annie's Annuals and other sources report that the berries are edible, but have a bitter taste and are best left for the birds.

*Photo by Nancy Nies*

*Lonicera hispidula* (California honeysuckle) berries;

In an article in the Jan.-Feb. 2013 issue of **Audubon** magazine, **Susan Tweit** lists *L. hispidula* as one of the top twelve berry-producing plants frequented by birds. Berries, she points out, provide fats and antioxidants that help birds survive cold winters. According to the **Washington Native Plant Society**, *L. hispidula* berries, which appear from late summer through fall, are eaten by grouse, pheasants, flickers, robins, thrushes, bluebirds, waxwings, grosbeaks, finches and juncos.

From April through June, the plant produces clusters of pretty, pink flowers that attract hummingbirds, bees and butterflies. **The Watershed Nursery** calls the plant very drought-tolerant and suggests planting it in partially shaded areas, such as around oaks, with snowberry, coffeeberry, and toyon. **The Town Mouse and Country Mouse** blog of May 28, 2010 explains the process of separating the seeds from the berries and propagating the plants.

### *Epilobium canum* —

Coming down the Mariposa trail, we saw the last, but not the least, of the hike's red — the showy scarlet flowers of *Epilobium canum* (California fuchsia, *Zauschneria*), which bloom from late summer through fall. Las Pilitas nursery states that the blooms can range in color from white and pink to orange and red, while foliage can be gray or green.

Las Pilitas says many California fuchsias are drought-tolerant, typically growing where they can receive extra moisture in the winter and gradually dry out through the fall. According to the nursery, "They prefer cool sun, but tolerate part-shade or hot sun with moisture."

Incidentally, if you have difficulty with the spelling of "fuchsia," remember that the plant is named for German botanist and physician *Leonhart Fuchs* (1501-1566). The plant's other common names include hummingbird flower and hummingbird trumpet. *E. canum* is a key species for the rufous hummingbird, says **Cindy Rubin** of the **Redbud Chapter of CNPS**, who has compiled information on hummingbirds and a listing of California native plants that attract them. She suggests planting patches of at least three plants, to provide both more color and more nectar. An abundance of the tube-shaped red flowers will "cue hummingbirds to rich sources of nectar," and draw them to your garden, writes Rubin, who explains that nectar-seeking insects usually cannot see the color red, while "it is estimated that a hummingbird in flight can spot a red flower from half a mile away."

Although we human beings may envy hummingbirds their ability to see red from such a distance, we share their attraction to the color. As we walked along the trail that September morning, touches of red--whether foliage, flowers, or berries—never failed to catch our eye and make us stop for a closer look. ✿

*Photo by Derrick Coetzee, Wikimedia Commons*

*Epilobium canum* (California fuchsia)

## Thank you to:

... **Monica Tudor** and **Dorie Giragosian** for miles traveled, records kept, plants purchased (and watered!) and work parties organized — all to make a sucessful plant sale.

... **Joy England** for a memorable talk on *Plants of Rock Creek*

... **Orchid Black** for teaching us to *Garden with Natives*

... **Paul Siri Wilson** for opening our eyes to *Bryophytes*

... **Rich Spjut** for leading and teaching our group, conducting field trips and programs and keeping the webpages fresh and up-to-date.

... **Dale Gradek** and **Andy Honig** for gathering and sharing seeds with the horticulture group.

... **Patty Gradek** for finding, scheduling and "riding herd" on field trip participants and leaders and tying it all up neatly for presentation.

...the members who provide refreshments at all our meetings. ✿

California Native Plant Society

CNPS is the leader for providing reliable information on California native plants and plant conservation. Comprehensive information about California's flora and vegetation communities is available throughout the state for conservation and educational purposes. CNPS's leaderships influences personal ethics and actions, as well as public policy for native plant protection.

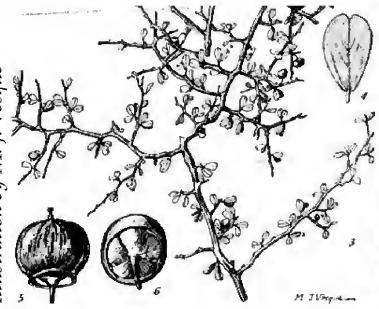




**Fig. 1:** *Colubrina* (Rhamnaceae), **Left:** *Colubrina humbertii* (Madagascar), **Right:** *Colubrina californica* (California, Chuckwalla Mts.)

## *President's Message*
## A Synopsis of the Vegetation, Symbiotic & Taxonomic Relationships in the Snakebush Genus, *Colubrina*

*by Richard Spjut*

THE GENUS COLUBRINA — CLASSIFIED IN THE buckthorn family (Rhamnaceae) — includes ~37 species of shrubs and trees distributed around the world in tropical and subtropical regions.[1] One occurs in California, *C. californica* (CNPS LIST 2B.3), beyond Kern County, in the Sonoran Desert. The related *Ceanothus*, by comparison, has ~55 species in North America with 46 in California and 10–11 in Kern County [2].

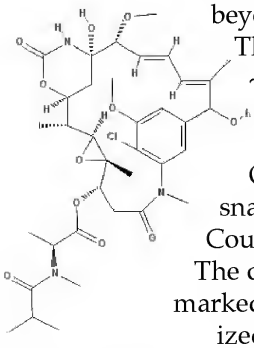


**Fig. 2.** Colubrinol

Once upon a time, ~17 million years ago, snakebush reportedly did grow in Kern County — in the Tehachapi Mountains[3]. The climate back then was subtropical with a marked dry season as evidenced by the fossilized plant remains found there. *Colubrina* and other species were determined by **Daniel Axelrod** to characterize vegetation of oak-conifer woodland, thorn and short tree forests of evergreen and deciduous species. Snakebush grew with madrone, manzanita, bayberry (*Myrica*), *Persea* (avocado), mesquite, hopbush (*Dodonea*), *Euphorbia*, *Karwinskia* (coyotillo), hackberry (*Celtis*), desert almond (similar to *P. fasciculata*), *Pithecellobium* (black bean, Mimosoideae), California laurel (*Umbellularia*), Arizona or Piute cypress, flannel bush, Mexican pinyon pine, *Cercocarpus*, and others; many have descendants still in Kern County,[4] which was at the latitude of San Diego today. The Tehachapi *Colubrina* fossil was thought to be similar to *C. triflora*[5] that presently occurs in subtropical deciduous forests along the Mexican Pacific Coast, while our *C. californica* is remarkably similar to a Madagascan desert species, *C. humbertii* **(Fig. 1)**, the latter differing only by a rudimentary **aril**. [6]


*Map Image Source: Google Earth*

**Fig. 4**. *Cynometra–Lasiodiscus* associations plotted on Google Earth. Four shown here for Tanzania: **Upper to lower right**: (1) northern Zanzibar, *C. lukei* and *L. pervillei* ssp. *pervillei*; (2) Pugu Hills, *C. longipedicellata* and *L. holtzii*; **lower to upper left**: (3) *C. uluguruensis* and *L. usambarensis*, Uluguru Mts.; (4) *Cynometra* and *Lasiodiscus* spp. indet., Nguru Mts. References were noted under Google Earth pin properties. Most species endemic to pin sites; exceptions are *L. usambarensis* and *L. pervillei*; the latter has another subspecies in Madagascar.


**Fig. 3**. A tropical humid forest north of Mombassa west of Malindi, Kenya, the canopy trees largely one species, *Cynometra webberi*. In the understory was *Lasiodiscus ferrugineus* (Rhamnaceae).

Are these disjunct occurrences the result of long-distance dispersal of *Colubrina* seeds by birds or storms, or did *Colubrina* spread slowly over land, to or from Madagascar?

My interest in *Colubrina* eco-geography was pursuant to taxonomic relationships of novel anticancer compounds, **colubrinol** (**Fig. 2**) and **colubrinol acetate**, isolated from *C. texensis*, and the antitcancer activity in the related *C. californica*. These compounds are structurally similar to another novel anticancer compound, **maytansine**, discovered previously in an Ethiopian shrub, *Maytenus* (*Gymnosporia*) *serrata* (staff tree family, Celastraceae). Collectively referred to as **maytansinoids**, they are rare in plants, known from closely-related species in four genera (*Colubrina*, *Gymnosporia*, *Mallotus*, *Putterlickia*). In *Gymnosporia* (~300 spp.), for example, maytansinoids occur mostly in the *G. ovata* species complex, in Kenya, Ethiopia

and India, and in the related genus, *Putterlickia* (2 spp.) in South Africa. The *G. ovata* complex possibly evolved in northern Africa during the mid Tertiary (30–20 mya) along margins of equatorial tropical forests in transition to savanna — then retreated south in Africa and east into India as the Sahara Desert developed and continents drifted north.[7] The Celastraceae, Rhamnaceae and one other maytansinoid genus in the Euphorbiaceae (*Mallotus*) are related at a higher classification level called "Rosids" (subclass Rosideae).

Maytansinoids are also known as **ansamitocins** in actinobacteria. They include genera of *Streptomyces* that produce many of our antibiotics, *Frankia* that grow symbiotically with *Ceanothus* roots, fixing nitrogen, and *Actinosynnema* that contain ansamitocin. Rather than extract maytansine or colubrinol from plants, two former research leaders of the USDA Medicinal Plant Resources Laboratory and of the NCI Natural Products Branch travelled in 1977 to Ethiopia, Kenya, South Africa, and Texas — where they collected soil and plant parts to screen microbial cultures for the ansamitocin-producing bacteria — that so far remain cryptic.[8] Nonetheless, the ansamitocins in Rosids indicate a plant–actinobacterial relationship, dating back to the Cretaceous (145–65 mya)[9] when continents were closer together.

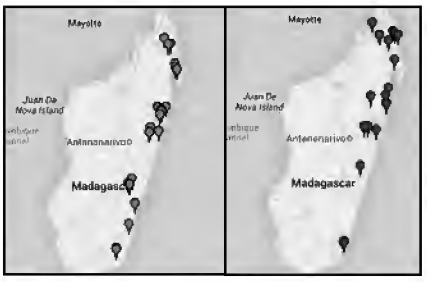



**Fig. 5**. **A** Comparison of geographical occurrences of endemic *Cynometra madagascariensis* ssp. *rivularis* (**left**) with *Colubrina faraloatra* in Madagascar (**right**).



**Fig. B**. Illustration of *Cynometra madagascariensis* by A.R. d'Apreval, Grandidier, *Histoire physique, naturelle et politique de Madagascar, Atlas, vol.* 1: t. 31 (1882), contributed by the Missouri Botanical Garden.

Although *Colubrina* is widely distributed, in tropical Africa it is replaced by *Lasodiscus*, a genus of 9–13 species in which I collected a specimen of *L. ferrugineus* near the equator along the Kenya coast west of Malindi while drying samples I had collected of anticancer plants. At the time, *L. ferrugineus* was known only by relatively few collections, mine from an understory tree in a pure *Cynometra webberi* (Caesalpinioideae) forest (**Fig. 3**), not the typical mixed species forest of canopy trees one usually sees in humid tropical lowlands. A close relative of *L. ferrugineus* (or same species, *L. mildbraedii)* is a common understory tree in a *C. alexandri*-dominant rain forest in Uganda and eastern Congo[10]. The Kenya–Uganda occurrences are separated 625 air miles by vast areas of savanna and bush vegetation, a distance comparable to the ponderosa pine–antelope bush association between the Sierra Nevada and Rocky Mts. described in the last newsletter. Probably no one would disagree that the *Cynometra–Lasiodiscus*, or the ponderosa pine-antelope bush, associations were connected in the past. This is further evidencedt by the *Cynometra–Lasiodiscus* close associations in Tanzania, represented by more geographically restricted species (**Fig. 4**), and by geographical distribution patterns exemplified by *Cynometra madagascariensis* and *Colubrina faraloatra* in Madagascar (**Fig. 5**).

The *Cynometra–Lasiodiscus/ Colubrina* relationships become more complex when associated species in other genera are included. An analogy is the social network connections such as "Facebook." Some are mutual ("friends"), others not. In the 2nd edition of **A Manual of California Vegetation** (MCV2), for example, the alliance[11] of creosote bush and white bur sage ("*Larrea tridentata - Ambrosia dumosa* Alliance") might be viewed as mutual under which many associations ("friends") are listed, while both *Larrea* and *Ambrosia* also have their own separate alliances and associations. An association between *Colubrina californica* and *A. ilicifolia* appears evident when both species are relatively infrequent in California yet occur in close proximity at several locations. [12] In forests with *Cynometra* (~ 85 spp.) and *Colubrina* or *Lasiodiscus*, one may find understory shrubs or trees of *Manilkara* (Sapotaceae), *Rinorea* (Violaceae), and/or *Chrysophyllum* (Sapotaceae), not only in East Africa and Madagascar, but in more distant places such as Cuba (**Fig. 6**) and Costa Rica. The Cuban forest has *Pithecellobium*, which was earlier mentioned as once present in the Tehachapi Mts.

*Cynometra– Colubrina* associations are further evident in India, Malaysia, and in the Pacific Islands. *Cynometra iripa* and *Colubrina asiatica* are common in "back mangrove" vegetation along many coastal areas such as on Guam. Both have fruits (*Cyn. iripa*) or seeds (*Col. asiatica*) adapted to float in the ocean. In other locations, such as on the relatively small Christmas Island, is the endemic


**Fig. 6**. Illustration of forest by Merendez et al. (1987) in western Cuba, where red pin is inserted, on Google Earth. Text and arrows added to point out *Cynometra*, *Manilkara*, *Chrysophyllum* and *Pithecellobium*. The first three genera frequently occur in Africa and Madagascar in close association with *Colubrina* or *Lasiodiscus*. *Pithecellobium*, restricted to tropical America, once occurred in Kern County. Arrow pointing to location of *Colubrina cubensis* based on labels attached to herbarium specimens cited in image at the US National Herbarium, Smithsonian Institution

---

*Col. pedunculata* where *Cyn. ramiflora* also occurs. In southern India, *Cynometra travancorica* and *Colubrina travancorica* appear closely associated in the Western Ghats. On the Malay peninsula *Colubrina anomala* occurs near a mixed caesalpinioid (Fabaceae) forest of *Cynometra*, *Sindora*, and *Intsia* "deficient" in Dipterocarpaceae that are usually dominant in tropical Asian vegetation, while *Sindora*, primarily an Asian genus of 12 species, has a disjunct species in West Africa, Gabon, and that of *Intsia* has a related species, *I. bijuga*, known to occur with *Lasiodiscus pervillei* in southeastern Madagascar.


Photo courtesy Marina Khaytarova

**Fig. 7**. *Colubrina anomala* and *Cynometra malaccensis* — A composite of three images: (1) Malay peninsula extracted from Google Earth, with area circled in red where *Colubrina anomala* once occurred near *Cynometra malaccensis*; (2) text copied as an image[13] (3) photo of *Cynometra malaccensis* showing leafy branches with fruit. Merbau and Kekatong are common names for *Intsia palembanica* and *Cynometra inaequifolia* (= *C. malaccensis*), respectively.

Thus, it would seem that *Colubrina* spread around the world by ocean currents for one species that has buoyant seeds that germinate and grow near tropical seashores, and by land for most other species that are found inland in tropical forests, bush-lands and desert regions. The close association of *Colubrina* with *Cynometra* and other genera, especially in Fabaceae, suggest speciation associated with the plant communities by geographical isolation over time, while the desert California and Madagascar species of *Colubrina* probably acquired their similar traits independently from ancestral rain forest species through adaptation over time to semi-desert climates. ✿

## References:

[1] Phytogeography of the *Colubrina* complex [Rhamnaceae]. *World Botanical Associates Web Page*, prepared by Richard Spjut. http://www.worldbotanical.com/ Colubrina.htm, Nov. 2014.

[2] *Ceanothus* [Rhamnaceae]. *Trees and shrubs of Kern County*. http://www.worldbotanical.com/ceanothus.htm.

[3] Axelrod, D. I. 1979. Age and origin of the Sonoran Desert. *California Academy of Sciences, Occasional Papers No. 132*, citing reference to his 1939 paper: A Miocene flora of the Mohave Desert, *Carnegie Inst. Wash. Publ.* 516: 1–128.

[4] Millar, C. I. 2012. Geologic, climatic, and vegetation history of California in *The Jepson Manual: Vascular Plants of California. 2nd Edition*. Eds. B. G, Baldwin, D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, D. H. Wilken. Univ. Calif. Press, Berkeley, pp.49–87. **Note:** Species names in text also taken from Axelrod cited above.

[5] Johnston , M. C. 1971. Revision of *Colubrina* (Rhamnaceae), *Brittonia 23: 1–53*, concluded that Axelrod's identification of the *Colubrina* fossil is more similar to *Ziziphus obtusifolia* (Rhamnaceae).

[6] **Aril:** an enlargement of the funiculus extending over the seed, the funiculus analogous to the mammalian umbilical cord of an embryo. Inside the ovary of the flower one or more ovules each connect to the placenta(e) by a funiculus.

[7] Spjut, R. W. 1978. Review of Taxonomy, Ecology, and Geographical Distribution of *Maytenus buchananii*. *USDA Memorandum*, Agric. Res. Service, Med. Plant Res. Lab., *Feb 21*, 16 pp., 2 Figs, http://www.worldbotanical.com/images/ARS_African_Plants/Maytenus_buchananii.pdf.

[8] Wings, S., H. Müller, G. Berg, M. Lamshöft, and E. Leistner. 2013. A study of the bacterial community in the root system of the maytansine containing plant *Putterlickia verrucosa*. *Phytochemistry 91*: 158–164.

[10] Magallón, S. & A. Castillo. 2009. Angiosperm diversification through time. *Amer. J. Bot.* 96: 349–365.

[11] (**A**) Eggeling, W. J. 1951. The indigenous trees of the Uganda Protectorate, Revised and enlarged by Ivan R. Dale. Entebbe, Govt. Printer. (**B**) Evrard C, 1960. in: Flore du Congo Belge et du Ruanda-Urundi. *9: Rhamnaceae*, p. 438, *Lasiodiscus mildbraedii* Engl.

[12] "**Alliance**" (defined in MCV2): *"A classification unit of vegetation, containing one or more associations and defined by one or more diagnostic species, often of high cover, in the uppermost layer or the layer with the highest canopy cover."*

"**Association**" (defined in MCV2): *"A vegetation classification unit defined by a diagnostic species, a characteristic range of species composition, physiognomy, and distinctive habitat conditions"* (Jennings et al. 2006). "Association" in this synopsis has a broader meaning to include a relationship between two or more plant genera or species as seen by their repeated reoccurrences at disjunct locations.

[13] J. Wyatt-Smith 1964. A preliminary vegetation map of Malaya with descriptions of the vegetation types. J Tropical Geography: 18 200-213

## *Mulch on My Mind*

*by Monica Tudor*

WHAT DO MANY OF THE KERN CNPS members' beautiful gardens have in common? (Besides native plants, that is… ) Hint: it isn't glamorous, but it can make a significant difference! The often-ignored ingredient in successful native plantings is that lowly material, mulch! It might be gorilla hair (shredded redwood bark), wood chips, leaves, or even rocks or gravel. The key is to select the correct mulch for the type of plants used. (Check out **Las Pilitas'** website to see which type of mulch goes with which type of plant.) Mulch shades and insulates the soil from the sun's blazing heat, traps moisture in the soil, and makes it harder for weeds to take over.

I had never used organic mulch in my California garden, but followed **Bert Wilson's** advice (founder of Las Pilitas Nursery) and used inorganic mulch in the form of basketball size rocks on the south/southwest side of a plant. The rock shades the plant a bit as well as the soil above the roots, and also keeps a bit of moisture in the soil. However, it seemed like something was still needed since the casualty rate was still high, especially in the direct-sun portion of my garden.

*Photo by Monica Tudor*

Before mulching

Listening to members discuss their gardens during the horticulture discussion sessions at the monthly CNPS meetings revealed many of them use gorilla hair or wood chips for mulch. I decided to use small wood chips. My husband and I packed my Pontiac Vibe hatchback with bags and bags of wood chips from Lowes and Home Depot. I emptied dozens of bags around the garden and spread the chips with a garden rake till they were 2-3 inches deep. The brown colored wood chips were the closest to a "natural" color and set off the plants and the garden area from the path. I liked the way the mulch looked when it

After mulching

was spread out and it seems like the plants appreciated the cover.

My only concern was whether the mulch would inhibit volunteers from sprouting but my fears were unfounded. Today I went out and saw some bladderpods and some other unknown plants sprouting. California poppy, *Eschscholzia californica*, started sprouting through the wood chip mulch a few weeks ago, along with red flax, *Linum grandiflorum*. (Thanks to Dinah Campbell, who identified them for me when she came over to buy some plants leftover from the plant sale.) Of course the desert marigolds, *Baileya multiradiata*, are volunteering, albeit in the path, not the garden bed.

The best advice is do what works for your garden. If it is doing fine without mulch, fantastic! But if you think it could use a little something, consider mulch! ✿

---

## *Climate Change Corner:*

### QUESTION: How can humans be so powerful as to impact the entire atmosphere?

SCIENTISTS KNOW OUR CLIMATE IS CHANGing, primarily due to carbon pollution from the burning of dirty energy like oil and coal. It's true that other factors impact our climate, including other greenhouse gases such as methane. Solar variation, volcanoes, and clouds all effect the climate, too.

Humans, however, release at least 100 times more carbon dioxide into the air than volcanoes.

Emissions from Mount Pinatubo, the strongest volcanic eruption over the past 50 years, amounted to just 0.2 percent of human emissions in 1991.

*(reprinted from Kern Audubon's Warbler, Dec. 2016)*

## *FIELD TRIPS*

*by Patty Gradek with Rich Spjut*

KERN CNPS FIELD TRIPS ARE OPEN TO ALL. Occasionally, numbers will be limited by the land owners or agencies. We welcome you to join us to see and learn about our native plants and their habitats, to learn to identify plants, or to photograph them. If you are skilled in plant identification, you can help us all learn.

Please always dress in layers, wear boots or shoes you can hike in, and bring food and water. You may also want to bring a hat, sunscreen, binoculars, camera, plant lists and useful references such as Kern County Flora and the Jepson Manual, or any book you like. We try to meet at a spot where we can park some cars and carpool to our location to save the air, the gas, the money and make sure that we will have adequate space to park. CNPS does not arrange car pools; each person does so at the meeting place. If you ride with another driver, please remember to offer to help pay for gas.

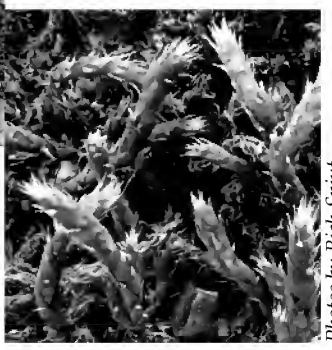
All trips are by reservation only, so we know whom to expect, and how many will be attending each field trip. Each trip will have the contact person listed. Please email the contact person by four days before the field trip and indicate the names of those who will attend. Please also provide a cell phone number if we need to reach you that day and indicate whether you will be driving a four-wheel drive, AWD or high-clearance vehicle. We may need to limit participation for some trips if we don't have an adequate number of four-wheel drive, AWD or high-clearance vehicles for all the participants.

IMPORTANT: **If your plans or your party's plans change and you will not be attending, it is critical for safety, planning and courtesy reasons – that you call or email the contact person and let them know you will not be there.**

**March 4, Saturday**
KERN RIVER CANYON - MILL CREEK, BRYOPHYTES
with **Paul Siri Wilson** and **Rich Spjut**
Contact: **Rich Spjut** - *richspjut@gmail.com*
RSVP Deadline: **8pm, Tuesday, February 28**

Meet 9:00 in Bakersfield at parking lot in small shopping center near "Tuesday Morning" located at the corner of Fairfax and Auburn streets, north side of Exit 7 off Hwy 178. Carpool from there to Mill Creek along Old Kern Canyon Rd.

Assuming the creek will be dry, we will start from where the creek bed meets the road, not from the trailhead above Mill Creek, which is further up the road. Slopes above the creek have scattered Douglas oak, grey pine, and *Ceanothus cuneatus* among exotic grasses and native herbs, which are expected to be in flower. The creek bed where we plan to tour has open forest of interior live oak, sycamore, occasional buckeye and pine among scattered large boulders and smaller rocks. The large boulders usually have a dense cover of various moss species. Occasionally mosses will be seen on smaller rocks, tree roots, and soil of creek bank and branches of trees. If the creek has water, then we will start from the trailhead. The trail crosses the creek at three places starting about two miles up the trail. Along the way are boulders covered in part with mosses and lichens. Note that in walking along the creek bed and not on the trail one has to be careful about not tripping over rocks or losing balance from walking over uneven ground surface. Poison oak occurs in rocky places.



**Left:** *Funaria hygrometrica* (bonfire moss) **Below:** *Hedwigia detonsa* below Mill Creek Trail, Nov. 2016

*Photos by Rich Spjut*

**March 25, Saturday**
RANCHO SANTA ANA BOTANIC GARDEN
with Travis Columbus and Joy England
Contact: **Patty Gradek** – *pattygradek@gmail.com*
RSVP Deadline: **8pm, Tuesday, March 21**
**Note:** limited to 20 participants

**Travis Columbus**, Research Scientist at Rancho Santa Ana Botanic Garden (RSABG) and Professor of Botany at Claremont Graduate University, and **Joy England**, Herbarium Curatorial Assistant at RSABG and Master's Student at Claremont Graduate University, will lead us on a tour of RSABG in Claremont, California. Members will recall that Travis and Joy gave excellent presentations at past meetings. Travis gave a presentation on grasses and Joy spoke at another meeting on the plants of the Rock Creek area. The Botanic Garden is especially beautiful in the spring and we're delighted that Travis and Joy will be giving us a private tour and we'll have an opportunity to walk around the Garden and visit the *Grow Native Nursery*, which offers a broad selection of California native plants for sale.

Rancho Santa Ana is dedicated to California native plants and environmental conservation. You can visit their website at *rsabg.org*. Plan on this being a full day trip. We will meet at the "Park and Ride" at the corner of Real Road and Stockdale Highway at 7:00 am to form carpools. We will leave promptly at 7:10 am and will arrive at the Garden by 9:45 am with a stop at the rest area near Lebec. We've been offered a special rate of **$10 per person** for the private tour. Each participant needs to bring $10 and please offer to help pay for gas

*Photo courtesy Rancho Santa Ana Botanic Garden*

*Palo verde* at Rancho Santa Ana Botanic Garden

if you will be riding with someone else. We will do the tour with Travis and Joy in the morning and will break for lunch around noon. Please carry your lunch with you as we will be selecting a place in the Garden to have lunch. Following lunch, participants are free to stroll around the Garden (86 acres) and visit the Grow Native Nursery where a wi"'de selection of native plants are sold. Each carpool can coordinate their leaving time for the 2½ hour drive back to Bakersfield.

**April 1, Saturday**
CALIFORNIA LIVING MUSEUM (CALM)
with **Don** and **Yvonne Turkal**
Contact: **Patty Gradek** – *pattygradek@gmail.com*
RSVP Deadline: **8pm, Tuesday, March 28**

**Don** and **Yvonne Turkal**, members of our Chapter and volunteers at CALM, will lead us on a tour of the native gardens at CALM which is on Alfred Harrell Highway, east of Hart Park and the Kern County soccer park. The gardens at CALM are beautiful in the spring and Don and Yvonne have done a tremendous amount of work establishing and labeling native plants there. CALM is a wonderful asset to our community and many people visit to see the animals. The tour with Don and Yvonne will highlight the diversity and abundance of native plants that are on site as well.

We will meet Don and Yvonne at the entrance to CALM at 8:50 am and they will begin the tour at 9am. The cost for entering CALM will be **$5** for adults, **$3** for any children (3-12) and free for members. The tour will conclude by 11 am.

**April 2, Sunday**
HUNGRY VALLEY STATE VEHICULAR RECREATION AREA
with **Maggie Hurley**
and **Pam DeVries**
Contact: **Patty Gradek** – *pattygradek@gmail.com*
RSVP Deadline: **8pm, Tuesday, March 28**
**Note:** limited to 20 participants

*Carnegiea gigantea* (saguaro cactus), CALM

Although Hungry Valley is set aside as a State Off Highway Vehicle tpark, there are some beautiful areas with wildflower displays in the spring. **Maggie Hurley**, Interpreter with Hungry Valley, and **Pam DeVries**, Chapter member and Botanist, will lead us on a field trip at Hungry Valley which is 40 miles south of Bakersfield on I-5 and before Gorman. We will meet at the "Park and Ride" at the corner of Real Road and Stockdale Highway at 12:00 noon to form carpools. We will leave promptly at 12:15pm and will arrive at Hungry Valley after 1:00pm. We will meet at the parking lot at the north entrance to the area and will carpool and caravan from there. There are restrooms at the parking area. We will be driving on narrow dirt roads and Hungry Valley would like to limit the trip to 20 participants. They have offered to comp the $5 per car fee that is normally charged. Please offer to help pay for gas if you are riding with someone else.

An excellent reference for this area is "**A Field Guide to the Plants of the San Emigdio Mountains Region of California**" by Pam DeVries. This beautiful guide also covers the Wind Wolves Preserve, the Gorman Hills, the Frazier Mountain Recreation Area and the Mount Pinos Recreation Area. You can purchase a copy at the CNPS online bookstore at *store.cnps.org/collections/books.*

**Below:** View of Hungry Valley
**Right:** *Salvia dorii* (purple sage)

*Photos by Otto Gasser*

**April 12, Wednesday**
WESTERN MOJAVE DESERT
with **Rich Spjut**
Contact: **Patty Gradek** - *pattygradek@gmail.com*
RSVP Deadline: **8pm, Friday, March 31**

Meet in Bakersfield, Hwy 58 and Weedpatch Hwy (184), south exit, near Taco Bell at 8:30 AM. There will be a rest stop at the town of Mojave. We then leave Mojave via north exit off Hwy 58 on to Hwy 14 towards California City.

Within a mile we may go north off the paved road on BLM designated tract roads, best suited for small high clearance vehicles. We hope to see the desert in bloom. P*runus andersonii*, which usually occurs among rocks along the Eastern Sierra Nevada in Joshua tree woodland, sagebrush scrub or Jeffrey pine forest, will be seen among creosote bushes. Alternatively, we may go off on Pine Tree Canyon Road, or to Red Rock State Park. Red Rock appears to have received good rain Nov 27-28 . TBD in March.

*Wikimedia Commons*

*Photo by Joe Decruyenaere,*

**Right:** *Prunus andersonii* (Anderson's desert peach)


**April 23, Sunday**
WIND WOLVES PRESERVE
Contact: **Patty Gradek** – *pattygradek@gmail.com*
RSVP Deadline: **8 pm, Tuesday, April 18**

The Wind Wolves Preserve has beautiful displays of spring wildflowers and we hope to catch them at their peak. We will meet at the "Park and Ride" at the corner of Real Road and Stockdale Highway at 8:00am to form carpools. We will leave promptly at 8:15am and will arrive at Wind Wolves at 9:00am. Please bring money for a donation at the entrance station and offer to help pay for gas if you are riding with someone else.

We will be walking some of the trails. Each carpool can decide on how long they want to stay. It would be a good idea to bring a lunch since there are good spots for a picnic.

An excellent reference for this area is "**A Field Guide to the Plants of the San Emigdio Mountains Region of California**" by **Pam DeVries**. You can purchase a copy at the CNPS online bookstore at *store.cnps.org/collections/books*.

**April 29, Saturday**
SALT CREEK NEAR THREE RIVERS
with **Denis Kearns** and
members of the Alta Peak Chapter
Contact: **Patty Gradek** – *pattygradek@gmail.com*
RSVP Deadline: **8pm, Tuesday, April 25**
**ALL DAY** - **Note**: limited to 25 participants

The Salt Creek and Case Mountain area is on BLM land near Three Rivers, California. This will be a full-day trip due to a 2 to 2 ½ hour drive from Bakersfield. This will be a joint field trip with members of the Alta Peak Chapter of CNPS. Two of the Alta Peak Chapter members joined us on our field trip to Carrizo Plain National Monument this past spring. In our past experience, this area has a spectacular diversity and abundance of wildflowers in late April.

The Bakersfield participants will meet at the parking lot of the BLM office at 3801 Pegasus Drive at 7:00am to form carpools. We will leave by 7:15am and meet the Alta Peak participants between 9:30am and 9:45am at a location on BLM land. There will be a brief restroom stop along the way. Please offer to help pay for gas if you are riding with someone else. The meeting location will be specified to those who RSVP.

**Below:**
*Calycanthus occidentalis*
(spicebush)

**Above:**
*Stylomecon heterophylla*
(wind poppy)

*Photos by Denis Kearns*

**June 14, Wednesday**
PIUTE MOUNTAIN/SADDLE SPRINGS ROAD
with **Richard Spjut**
Contact: **Patty Gradek** – *pattygradek@gmail.com*
RSVP Deadline: **8 pm, Friday, June 9**
**ALL DAY -** High-clearance vehicle with good tires and 4-wheel-drive a plus.

**Rich Spjut** will lead the trip. Meet at shopping center parking lot near *Tuesday Morning*, north side of Exit 7 off Hwy 178 at 8:30 am.

Stops will be made along the different vegetation alliances we see as we ascend the mountain. Starting at the lower elevation is the California juniper woodland with *Ceanothus cuneatus*. Common wildflowers to be seen, assuming good winter rains, are *Triteleia ixioides, Perideridea parishii, Monardella linoides,* E*riogonum umbellatum* var. *furcosum, E. nudum* var. *pubiflorum;* at

*Photo by Rich Spjut*

*Tritelia ixoides (*pretty face or golden star)

mid-elevation is the Piute cypress woodland, where we might see a rare *Sidalcea, S. hickmaniii,* occurring with shrubs of *Eriodictyon californicum, Turricula parryi, Ceanothus cf. vestitus,* and others. Further up the road is an extensive and varied chaparral that includes *Arctostaphylos glandulosa* ssp. *glandulosa,* not known in Kern County, relatively rare here but common elsewhere in California. The common manzanita in the Piute chaparral is *A. viscida* ssp. *mariposa* that forms dense tree-like thickets, which in 2016 appeared to be regenerating by seed from the most recent fire, although some branches apparently not badly burned were regenerating new leaves. Finally, the trip will conclude in the Jeffrey pine forest where we will stop for lunch. Many other wild flowers are expected to be seen along the road. The Saddle Springs Road is narrow, rocky, and with frequent dips. High clearance vehicles with good tires recommended. ✿

*Chapter Meetings*

## upcoming TOPICS

**Thursday, December 15, 2016 -**
**NO MEETING**

**Thursday, January 19, 2017 - 7 pm**
**ANNUAL POTLUCK**
Presenter: **Rich Spjut**
*Highlights of Past Year's Field Trips including Baja California*

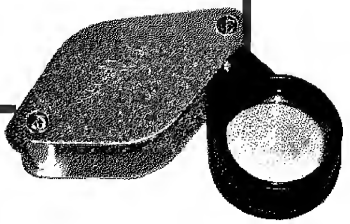
**Thursday, February 16, 2017 - 7 pm**
Program: **TBA**

**Thursday, March 16, 2017 - 7 pm**
Presenter: **Aaron Sims**
CNPS *Rare Plants*

**Thursday, April 20, 2017 - 7 pm**
Program: **TBA**

All chapter meetings are held the 3rd Thursday of each month at the Hall Ambulance Community Room 1031 21st Street (21st & N St.), Bakersfield, CA.

Meeting times:
6 pm — Discussion groups on plant identification and native plant gardening
7 pm — Program presentation



# Related Events — Local & Statewide:

California Garden Clubs, Inc. presents

## 2017 Wildflower Conference

March 27-29, 2017
Kernville, California

SCHEDULE

### Monday, March 27, 2017

**2 pm—4 pm**
**Registration**, Kern Lodge,
67 Valley View Drive, *Kern River Room*

**6:00 pm—9:00 pm**
**Welcome Reception**,
Meet & Greet "Wienie Roast", Pool Area

### Tuesday, March 28, 2017

**6:00 am—8:30 am**
Breakfast on your own

**All speakers will be at *Ewings on the Kern*,**
**125 Buena Vista Dr., Kernville**
**Times are approximate**

**9:00 am — 9:45 am**
*Nature's Gardens* by **Jackie Williams**
Naturalist, Intrpretive Specialist - Native Plants
Kernville Ranger Station, Sequoia Nat'l. Forest

**9:50 am — 10:35 am**
*Relict Plants of Piute Mtn. Region*
**Dr. Richard Spjut**
President CNPS, Kern County Chapter

**10:40 am — 10:50 am**
Break

**10:55 am —11:40 am**
*Native American Uses of California Native Plants*,
**Jon Hammond**, writer, Tehachapi News, naturalist, photographer

**12 pm — 1:30 pm**
Lunch at ***Ewings on the Kern***

### Tuesday, March 28, *(continued)*

**1:40 pm — 2:25 pm**
*Southern Sierra Nevada Ecological Crossroads & Rare Plant Hotspot*, **Fletcher Linton**, Forest Botanist, Sequoia Nat'l. Forest and Giant Sequoia Nat'l. Mon.

**2:30 pm — 2:45 pm**
Break

**2:45 pm — 3:30 pm**
Presentation by **Carrie Woods**, Wildlife Biologist, Ridgecrest BLM

**4:00 pm — 4:25 pm**
*Landscaping Along the Highway*
**CalTrans**, District 6-Fresno

**4:30 pm — 5:15 pm**
*Gardening for Wildlife at Kern River Preserve*
**Reed Tollefson**, Manager, Audubon Kern River Preserve

**6:00 pm — 7:00 pm**

**7:00 pm —9:00on pm "-ish"**
Dinner: **Ewings on the Kern**
Entertainment: at the lounge/bar: *Larry & Rich*

### Wednesday, March 29

**6:00 am — 8:30 am**
Breakfast on your own

**9:30 am — 12:00 pm**
Tour: we will carpool; meet at Kern Lodge parking area. Leave approximately 9:30 am
**Kernville Fish Hatchery** guided tour,
led by **Patrick Fitzgerald**

**Kern Valley Museum**.

2nd Annual Spring
Retreat "So Be Free 22"

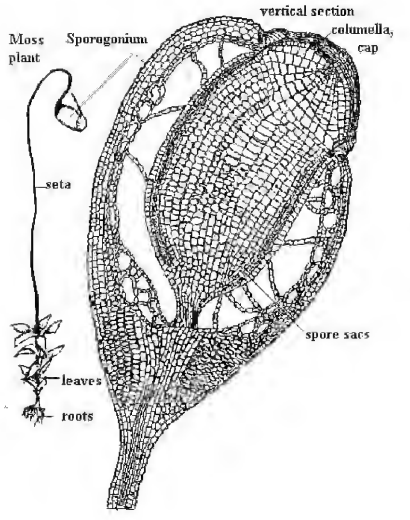
## Bryophytes

March 27-30, 2017
Three Rivers, California

This retreat, organized by **Paul Siri Wilson** (who is co-leading our Kern Valley Field Trip, March 4, 2017 - see Field Trip Section) will be held in the Three Rivers area.

The bryophytes (non-vascular plants — mosses, hornworts and liverworts) in this area are very rich where the fog from the valley hits the rock outcrops and scattered oaks. Variation in rock type further increases species richness.

Lodging is offered at the **Saint Anthony Retreat Center** or **Santa Teresita Youth Conference Center** where the event is based, but other lodging is available. Prices range from $65 to $355, depending on the type of lodging you choose. Registration deadline was **15 Dec. 2016**, but late registration deadline (and cancellation for a refund) must be received by **26 Feb. 2017**. Register at *bryophyte.cnps.org*. ✿




CNPS Introduction to

## Plant Identification

Apr 18 — 20, 2017
Tejon Ranch, Frazier Park, CA

Instructors: **Nick Jensen** and **Sandy Namoff**.
This is a 3-day, beginner-level workshop, including 2 days of classroom presentations/exercises and 1 full day in the field on **Tejon Ranch**. We will begin with basic plant morphology, focusing on structures necessary for plant ID. Participants will learn the specialized terminology necessary to identify plants in 15 common California plant families. These families contain more than 5000 taxa, which account for more than 70% of the plant diversity in California. Learning the characteristics of these plant families will reduce the amount of time required to key many plants to genus and species. We will utilize live material and taxonomic keys to better understand morphology in each family. Scientific names, along with common names, will be used throughout the workshop. Emphasis will be placed on common groups of plants in Southern California; however, information learned in this class will be readily applicable throughout California and the world. Common native families, genera, and species will be covered, including species in riparian, oak woodland, chaparral, and grassland habitats. Materials on basic plant morphology will be provided in advance.

To earn a certificate of completion, participants will need to pass a quiz (score of 70% or higher) at the end of the workshop, which will focus on identifying common plant structures, sight ID of plants to families covered in detail in the class, and effective use of taxonomic keys for plant ID.

**Cost:** Members - **$395**, Non-members, **$415**
**Deadline for registration:** Monday, **April 3, 2017**
**Registration:** *www.cnps.org/workshops*
**Contact: Becky Reilly**, CNPS Events Coordinator, (916) 447-2677 x207 or *breilly@cnps.org*

## Contacts:

President – Rich Spjut ..... richspjut@gmail.com
Vice President – Don Turkal ..... tloveanimals@bak.rr.com
Coordinator – Paul Gipe ..... pgipe@igc.org
Treasurer – Monica Tudor ..... dosportas@msn.com
Secretary – Sasha Honig ..... andym5@bak.rr.com
Conservation – Fred Chynoweth ..... mntbyrd@sbcglobal.net
Lucy Clark ..... lucyg391@gmail.com
Council Delegate – Dorie Giragosian ..... dorengiragosian@peoplepc.com
Field Trips – Patty & Dale Gradek ..... pattygradek@gmail.com
Clyde Golden ..... cgold666@hotmail.com
Meet-Up Coordinator ..... (volunteer needed)
Newsletter – Dinah Campbell ..... mimulus.memo@gmail.com
Plant Sale – Dorie Giragosian ..... dorengiragosian@peoplepc.com
Monica Tudor ..... dosportas@msn.com
Programs – Paul Gipe ..... pgipe@igc.org
Rich Spjut ..... richspjut@gmail.com
Publicity & Membership – Andy & Sasha Honig ..... andym5@bak.rr.com
Rare Plants – Clyde Golden ..... cgold666@hotmail.com
Webmaster – Rich Spjut ..... richspjut@gmail.com

The Kern Chapter of the

California Native Plant Society

California Native Plant Society meets the third Thursday of each month at:
Hall Ambulance Community Room
1013 21st St. (21st & N St.), Bakersfield, CA.
Chapter website: kern.cnps.org

*The California Native Plant Society is a non-profit organization dedicated to the conservation of California native plants and their natural habitats, and to increasing the understanding, appreciation, and horticultural use of native plants. CNPS has 31 chapters throughout the state and membership is open to all persons — professional and amateur — with an interest in California's native plants. Members have diverse interests including natural history, botany, ecology, conservation, photography, drawing, hiking and gardening. As a Kern County resident, your membership includes* Fremontia, *a quarterly journal with articles on all aspects of native plants; the* Bulletin, *a statewide report of activities and schedules; and* The Mimulus Memo, *the newsletter of the Kern Chapter.*

Join CNPS or renew your membership online at www.cnps.org.

Student/Limited Income – $25
Individual – $45
Family or Library – $75

CNPS-Kern Chapter
c/o Dinah Campbell, Editor
3806 Dalehurst Drive
Bakerfield, CA 93306
mimulus.memo@gmail.com

California Native Plant Society
KERN CHAPTER

# Mimulus Memo

Inside this Issue:

SEEING RED
SNAKEBUSH GENUS
FIELD TRIP LISTING
MEETING PLACE, DATES & TOPICS